Atty Dkt No. DX0757K 2790-0757.20 PATENT

"Express Mail" Mailing Label No. <u>EL847787794US</u>, Date of Deposit <u>7 20 0</u>. 1 hereby certify that this paper or fee is being deposited with the United States Postal Service Express Mail Post Office to Addressee" service under 37 C.F.R. § 1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

Susan La Mont
(Typed or Printed Name of Person Mailing Paper or Fee

(Signature of Person Mailing Paper or Fee)



## #1//2

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

HEDRICK et al.

Serial No.: CIP of 09/122,585

Group Art Unit: Unassigned

Filing Date: Even Date Herewith

Examiner: Unassigned

Title:

MAMMALIAN CHEMOKINES; RECEPTORS; REAGENTS; USES

## INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97

Assistant Commissioner for Patents Washington, D.C. 20231

Sir:

The information listed below may be material to the examination of the above-identified application. A completed Form PTO-1449 listing the references identified below accompanies this paper.

All references are of record, or have been submitted in related application serial number 09/122,585 from which the present application claims priority under 35 U.S.C. §120. Thus, pursuant to C.F.R. §1.98(d), copies of the references are not included.

Applicants would appreciate the Examiner's initialing and returning the form to indicate that the references have been reviewed and made of record in the present application. The information includes:

United States Patent No. 5,248,666 issued 9/28/98 to Twardzik *et al.*; United States Patent No. 5,932,445 issued 8/3/99 to Lal *et al.*; International Publication No. WO94/12519 published 6/9/94; International Publication No. WO94/12635 published 6/9/94; International Publication No. WO95/03318 published 2/2/95;

Atty Dkt No. DX0757K 2790-0757.20 PATENT

International Publication No. WO95/04158 published 2/9/95;

International Publication No. WO95/10538 published 4/20/95;

International Publication No. WO96/05226 published 2/22/96;

International Publication No. WO96/13587 published 5/9/96;

International Publication No. WO96/23225 published 8/1/96;

International Publication No. WO96/30406 published 10/3/96;

International Publication No. WO96/37621 published 11/28/96;

International Publication No. WO96/39434 published 12/12/96;

International Publication No. WO96/39438 published 12/12/96;

International Publication No. WO96/40040 published 12/19/96;

Anne L. Angiolillo, *et al.*, "A Role for the Interferon-Inducible Protein 10 in Inhibition of Angiogenesis by Interleukin-12," *Ann. NY Acad. Sci* 795:158-167 (1996);

Anne L. Angiolillo, *et al.*, "Human Interferon-inducible Protein 10 is a Potent Inhibitor of Angiogenesis In Vivo," *J. Exp. Med* 182(1):155-162 (1995);

Douglas A. Arenberg, *et al.*, "Interferon-γ-inducible Protein 10 (IP-10) Is an Angiostatic Factor That Inhibits Human Non-small Cell Lung Cancer (NSCLC) Tumorigenesis and Spontaneous Metastases," *J. Exp. Med.* <u>184(3)</u>:981-992 (1996);

Masataka Baba, *et al.*, "Identification of CCR6, the Specific Receptor for Novel Lymphocyte-directed CC Chemokine LARC," *J. Biol. Chem.* 272(23):14893-14898 (1997);

Ian Clark-Lewis, *et al.*, "Structural Requirements of Interleukin-8 Function Identified by Design Analogs and CXC Chemokine Hybrids," *J. Biol. Chem.* 269(23):16075-16081 (1994);

Joshua M. Farber, "HuMIG: A NEW HUMAN MEMBER OF THE CHEMOKINE FAMILY OF CYTOKINES," *Biochem. Biophys. Res. Commun.* 192(1):223-230 (1993);

Joshua M. Farber, "A macrophage mRNA selectively induced by  $\gamma$ -interferon encodes a member of the platelet factor 4 family of cytokines," *Proc. Natl. Acad. Sci. USA* 87:5238-5242 (1990);

Reinhold Forster, *et al.*, "A Putative Chemokine Receptor, BLR1, Directs B cell Migration to Defined Lymphoid Organs and Specific Anatomic Compartments of the Spleen," *Cell* 87(6):1037-1047 (1996);

- I. Gantz, et al., GenBank, Accession Number L42324 (1997), Definition: "Homo Sapiens (clone GPCR W) G protein-linked receptor gene (GPCR) gene, 5' end of cds.";
- I. Gantz, et al., GenBank, Accession Number L42326 (1997), Definition: "Canis familiaris (clone GPCR W) DNA fragment.";
- J. Hedrick, *et al.*, <u>GenBank</u>, Accession Number AF001979 (1997), Definition: "Homo sapiens beta chemokine mRNA, complete cds.";
- J. Hedrick, *et al.*, <u>GenBank</u>, Accession Number AF001980 (1997), Definition: Mus musculus beta chemokine mRNA, complete cds.";

Kunio Hieshima, *et al.*, "Molecular Cloning of a Novel Human CC Chemokine Liver and Activation-regulated Chemokine (LARC) Expressed in Liver," *J. Biol. Chem.* 272(9):5846-5853 (1997);

Robert Hromas, *et al.*, "Cloning and Characterization of Exodus, a Novel β-Chemokine," *Blood* 89(9):3315-3322 (1997);

R. Hromas, *et al.*, <u>GenBank</u>, Accession Number U88320 (1997), Definition: "Human beta chemokine Exodus-2 mRNA, complete cds.";

R. Hromas, *et al.*, <u>GenBank</u>, Accession Number U88322 (1998), Definition: "Mus musculus beta chemokine Exodus-2 mRNA, complete cds.";

Marcel Loetscher, *et al.*, "Chemokine Receptor Specific for IP10 and Mig: Structure, Function and Expression in Activated T-Lymphocytes," *J. Experimental Medicine* 184:963-969 (1996);

Andrew D. Luster, *et al.*, "γ-Interferon transcriptionally regulates an early-response gene containing homology to platelet proteins," *Nature* 315:672-676 (1985);

M. Marra, *et al.*, <u>GenBank</u>, Accession Number AA1077904 (1997), Definition: "mt05c02.r1 Soares mouse 3NbMS Mus musculus cDNA clone IMAGE:620162 5', mRNA sequence.";

M. Marra, et al., GenBank, Accession Number AA185904 (1997), Definition: "mu54a03.r1 Soares mouse lymph node NbMLN Mus musculus cDNA clone IMAGE:643180 5', mRNA sequence.";

M. Marra, et al., GenBank, Accession Number AA423677 (1997), Definition: "ve77d08.r1 Soares mouse mammary gland NbMMG Mus musculus cDNA clone IMAGE:832239 5' similar to TR:G1066731 G1066731 G PROTEIN-LINKED RECEPTOR;, mRNA sequence.";

M. Marra, et al., GenBank, Accession Number AA466996 (1997), Definition: "ve71a08.r1 Soares mouse mammary gland NbMMG Mus musculus cDNA clone IMAGE:831638 5', mRNA sequence.";

NCI-CGAP (Robert Strausberg), <u>GenBank</u>, Accession Number AA258793 (1997), Definition: "zs32c03.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA clone IMAGE:686884 3' similar to TR:G1066731 G1066731 G PROTEIN-LINKED RECEPTOR;, mRNA sequence.";

NCI-CGAP (Robert Strausberg), <u>GenBank</u>, Accession Number AA258898 (1997), Definition: "zs32c03.r1 NCI\_CGAP\_GCB1 Homo sapiens cDNA clone IMAGE:686884 5' similar to TR:G1066731 G1066731 G PROTEIN-LINKED RECEPTOR;, mRNA sequence.";

Yoshihiro Ohmori & Thomas A. Hamilton, "A Macrophage LPS-Inducible Early Gene Encodes the Murine Homologue of IP-10," *Biochem. Biophys. Res. Commun.* 168(3):1261-1267 (1990);

A.H. Sarris, *et al.*, "Human recombinant interferon-inducible protein-10 inhibits the proliferation of normal and acute myelogenous leukemia progenitors," *Leukemia* 10(5):757-765 (1996);

Cecilia Sgadari, *et al.*, "Mig, the Monokine Induced By Interferon-γ, Promotes Tumor Necrosis in Vivo," *Blood* 89(8):2635-2643 (1997);

Cecilia Sgadari, *et al.*, "Interferon-inducible protein-10 identified as a mediator of tumor necrosis in vivo," *Proc. Natl. Acad. Sci. USA* 93(24):13791-13796 (1996);

Atty Dkt No. DX0757K 2790-0757.20 PATENT

R.M. Streiter, et al., "INTERFERON Y-INDUCIBLE PROTEIN 10 (IP-10), A MEMBER OF THE C-X-C CHEMOKINE FAMILY, IS AN INHIBITOR OF ANGIOGENESIS," Biochem. Biophys. Res. Commun. 210(1):51-57 (1995);

Robert M. Streiter, *et al.*, "Role of C-X-C chemokines as regulators of angiogenesis in lung cancer," *J. Leuk. Biol.* <u>57</u>:752-762 (1995);

S. Tanabe, *et al.*, <u>GenBank</u>, Accession Number AF006637 (1997), Definition: "Mus musculus beta-chemokine TCA4 mRNA, complete cds.";

Padmavathy Vanguri & Joshua M. Farber, "Identification of CRG-2," *J. of Biol. Chem.* 265(25):15049-15057 (1990).

This Information Disclosure Statement under 37 CFR § 1.97 is not to be construed as a representation that: (i) a search has been made; (ii) additional information material to the examination of this application does not exist; (iii) the information, protocols, results and the like reported by third parties are accurate or enabling; or (iv) the above information constitutes prior art to the subject invention.

Respectfully submitted,

Date:  $\frac{7/20/0}{}$ 

Roberta L. Robins

Registration No. 33,208

DNAX Research Institute 901 California Avenue Palo Alto, CA 94304-1104 Telephone: (650) 852-9196

Facsimile: (650) 496-1200

FORM PTO-1	ORM PTO-1449 U.S. DEP		ARTMENT OF COMMERCE AND TRADEMARK OFFICE		ATTY. DOCKET NO.: DX0757K		SERIAL NO.: Unassigned			
INFORMATION DISCLOS FOR PATE			SURE STATEMENT		APPLICANT: Joseph A. H		Hedrick, <i>et al.</i>		ed 0.0	
(Use several sheets if nec				ssary) FILING D		TE: GROUP: ate Herewith Unassigned				
	-			TENT DOCU	MENTS				5	
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME		CLASS	SUB- CLASS	FILING D		
						<u> </u>	<u> </u>			
		F		PATENT DO	CUMENTS	10.100	Louis	LTOANC	ATION	
		DOCUMENT NUMBER	DATE	COUNTRY		CLASS	SUB- CLASS	TRANS YES	NO	
		NOMBER						·X		
	OTI	HER DOCUMENT	S (Includ	dina Author. Tit	le, Date, Per	tinent P	ages, Et	c.)		
	вк		et al., Ann.	NY Acad. Sci., 79	5:158-167, Oct	ober 31,	1996.			
	ВL	Anne L. Angiolillo, e "Human Interferon-	et al., <u>J. Ex</u> inducible F	<u>p. Med.,</u> 182(1):19 Protein 10 is a Po	55-162, July 1, Itent Inhibitor o	1995. f Angioge	enesis In	Vivo"		
	вм	Douglas A. Arenber "Interferon-γ-inducib Cell Lung Cancer (N	ole Protein	10 (lP-10) Is an A	ngiostatic Facto	or That Int	nibits Hun	nan Non	-small	
	BN	Masataka Baba, et "Identification of CC LARC"	<i>al.</i> , <u>J. Biol.</u> R6, the Sp	Chem., 272(23(:1 pecific Receptor fo	4893-14898, Jo or a Novel Lym	une 6, 199 phocyte-c	97. lirected C	C Chen	nokine	
	во	Ian Clark-Lewis, et "Structural Require Chemokine Hybrids	ments for I	Chem., 269(23):1 nterleukin-8 Fund	16075-16081, J ction Identified	une 10, 1 by Desigr	994. n Analogs	and C	xc	
	ВР	Joshua M. Farber, <u>Biochem. Biophys. Res. Commun.</u> , 192(1):223-230, April 15, 1993. "HuMIG: A NEW HUMAN MEMBER OF THE CHEMOKINE FAMILY OF CYTOKINES"								
	ВQ	Joshua M. Farber, "A macrophage mf factor 4 family of cy	RNA select	Acad, Sci. USA, 8 ively induced by	37:5238-5242, ο γ-interferon end	luly 1990. codes a n	nember o	f the pla	atelet	
	BR Reinhold Förster, et al., Cell, 87(6):1037-1047, December 13, 1996.  "A Putative Chemokine Receptor, BLR1, Directs B cell Migration to Defined L and Secific Anatomic Compartments of the Spleen"					efined Ly	mphoid	Organ		
	BS	I. Gantz, et al., Ger Definition: "Homo s end of cds."	<u>Bank,</u> Acc sapiens (clo	ession Number Lone GPCR W) G	42324, August ( protein-linked re	6, 1997. eceptor g	ene (GPC	CR) gene	e, 5'	
	вт	I. Gantz, et al., Ger Definition: "Canis fo	<u>nBank,</u> Acc amiliaris (c	ession Number L lone GPCR W) D	42326, August NA fragment."	6, 1997.				
EXAMINE	R	<u>. L</u>			CONSIDERED					
*EXAMIN through capplicant.	itatior	nitial if reference con n if not in conformanc	sidered, when and the same side in the s	nether or not citation considered. Include	on is in conform de copy of this f	ance with orm with	MPEP 60 next com	9; Drav nunicati	v line on to	

FORM PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO.: SERIAL NO.: Unassigned				
INFORM	ATION DISCLOSURE STATEMENT FOR PATENT	APPLICANT: Joseph A, Hedrick, et al.				
(Us	se several sheets if necessary)	FILING DATE: GROUP: Even Date Herewith Unassigned				
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.						
ви	J. Hedrick, et al., <u>GenBank</u> , Accession Number AF001979, November 20, 1997.  Definition: "Homo sapiens beta chemokine mRNA, complete cds."					
в۷	J. Hedrick, <i>et al.</i> , <u>GenBank,</u> Accession Number AF001980, November 20, 1997. Definition: "Mus musculus beta chemokine mRNA, complete cds."					
ВW	Kunio Hieshima, <i>et al.</i> , <u>J. Biol. Chem.</u> , 272(9):5846-5853, February 28, 1997. "Molecular Cloning of a Novel Human CC Chemokine Liver and Activation-regulated Chemokine (LARC) Expressed in Liver"					
вх	Robert Hromas, <i>et al.</i> , <u>Blood</u> , 89(9):3315-3322, May 1, 1997. *Cloning and Characterization of Exodus, a Novel β-Chemokine					
ВҮ	R. Hromas, et al., GenBank, Accession Number U88320, December 18, 1997.  Definition: "Human beta chemokine Exodus-2 mRNA, complete cds."					
вz	R. Hromas, et al., GenBank, Accession Number Definition: "Mus musculus beta chemokine Exc	odus-2 mHNA, complete cas.				
CA	Marcel Loetscher, et al., <u>J. Experimental. Medicine</u> , 184:963-969, September 1996. "Chemokine Receptor Specific for IP10 and Mig: Structure, Function and Expression in Activated T-Lymphocytes"					
СВ	Andrew D. Luster, <i>et al.</i> , <u>NATURE</u> , 315:672-676, June 20, 1985. "γ-Interferon transcriptionally regulates an early-response gene containing homology to platelet proteins"					
cc	M. Marra, et al., GenBank, Accession Number AA177904, February 16, 1997.  Definition: "mt05c02.r1 Soares mouse 3NbMS Mus musculus cDNA clone IMAGE:620162 5', mRNA sequence."					
CD	M. Marra, et al., GenBank, Accession Number AA185904, January 9, 1997.  Definition: "mu54a03.r1 Soares mouse lymph node NbMLN Mus musculus cDNA clone IMAGE:643180 5', mRNA sequence."					
CE	M. Marra, et al., GenBank, Accession Number AA423677, October 16, 1997.  Definition: "ve77d08.r1 Soares mouse mammary gland NbMMG Mus musculus cDNA clone IMAGE:832239 5' similar to TR:G1066731 G1066731 G PROTEIN-LINKED RECEPTOR;, mRN/sequence."					
CF	M. Marra, et al., GenBank, Accession Number AA466996, June 11, 1997.  Definition: "ve71a08.r1 Soares mouse mammary gland NbMMG Mus musculus cDNA clone IMAGE:831638 5', mRNA sequence."					
CG	NCI-CGAP (Robert Strausberg), <u>GenBank</u> , Accession Number AA258793, August 13, 1997. Definition: "zs32c03.s1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:686884 3' similar to TR:G1066731 G1066731 G PROTEIN-LINKED RECEPTOR;, mRNA sequence."					
EXAMINER	LOATE CONCIDENCE					
*EXAMINER: through citation applicant.	Initial if reference considered, whether or not citation if not in conformance and not considered. Include	on is in conformance with MPEP 609; Draw line de copy of this form with next communication to				

FORM PTO-1449	U.S. DEPARTMENT OF COMMERCE	ATTY. DOCKET NO.:	SERIAL NO.:			
	PATENT AND TRADEMARK OFFICE	DX0757K Unassigned APPLICANT:				
INFORM	ATION DISCLOSURE STATEMENT FOR PATENT	Joseph A, Hedrick, <i>et al.</i>				
(Us		FILING DATE: Even Date Herewith	GROUP: Unassigned			
*	OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)					
СН	NCI-CGAP (Robert Strausberg), GenBank, Accession Number AA258898, August 13, 1997.  Definition: "zs32c03.r1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:686884 5' similar to TR:G1066731 G1066731 G PROTEIN-LINKED RECEPTOR; mRNA sequence."					
CI	Yoshihiro Ohmori & Thomas A. Hamilton, <u>Biochem. Biophys. Res. Commun.</u> , 168(3):1261-1267, May 16, 1990.  "A Macrophage LPS-Inducible Early Gene Encodes the Murine Homologue of IP-10"					
CJ	A.H. Sarris, et al., <u>Leukemia</u> , 10(5):757-765, May 1996. "Human recombinant interferon-inducible protein-10 inhibits the proliferation of normal and acute myelogenous leukemia progenitors"					
ск	Cecilia Sgadari, <i>et al.</i> , <u>Blood</u> , 89(8):2635-2643, April 15, 1997. "Mig, the Monokine Induced By Interferon-γ, Promotes Tumor Necrosis in Vivo"					
CL	Cecilia Sgadari, et al., <u>Proc. Natl. Acad. Sci. USA</u> , 93(24):13791-13796, November 26, 1996. "Interferon-inducible protein-10 identified as a mediator of tumor necrosis in vivo"					
СМ	R. M. Streiter, <i>et al.</i> , <u>Biochem. Biophys. Res. Commun.</u> , 210(1):51-57, May 5,1995. "INTERFERON γ-INDUCIBLE PROTEIN 10 (IP-10), A MEMBER OF THE C-X-C CHEMOKINE FAMILY, IS AN INHIBITOR OF ANGIOGENESIS"					
CN	Robert M. Streiter, <i>et al.</i> , <u>J. Leuk. Biol.</u> , 57:752-762, May 1995.  *Role of C-X-C chemokines as regulators of angiogenesis in lung cancer*					
СО	O S. Tanabe, et al., GenBank, Accession Number AF006637, June 22, 1997.  Definition: "Mus musculus beta-chemokine TCA4 mRNA, complete cds."					
CP	Padmavathy Vanguri & Joshua M. Farber, <u>J. of Biol. Chem.</u> , 265(25):15049-15057, Sept. 5, 1990. "Identification of CRG-2"					
EXAMINER		CONSIDERED				
*EXAMINER: I through citation applicant.	nitial if reference considered, whether or not citation if not in conformance and not considered. Includ	n is in conformance with le copy of this form with I	MPEP 609; Draw line next communication to			

FORM PTO-1449 U.S. DEPARTA PATENT AND			AND TRADEM	IARK OFFICE DX0757K		SERIAL NO.: Unassigned			
INFO	RMA	TION DISCLOS FOR PATE	URE STA	TEMENT		ledrick, et al.			
(Use several sheets if necessar				ıry)	<b>FILING DATE:</b> Even Date H	GROUP: Unassigned			
			U.S. PA	TENT DOCU	MENTS		· · · · · · · · · · · · · · · · · · ·	F	
EXAMINER		DOCUMENT NUMBER	DATE	NAME		CLASS	SUB- CLASS	FILING I	
HALLING	ca	5,248,666	9/28/93	Twardzik,	et al.				
	CR	5,932,445	8/3/99	Lal, et al.		<u></u>		<u> </u>	
	<u> </u>	F	OREIGN	PATENT DO	CUMENTS	1	Louis	TRANS	ATIONI
		DOCUMENT NUMBER	DATE	COUNTRY		CLASS	SUB- CLASS	YES	NO
	cs	WO 94/12519	6/9/94	PC	T			Х	
	СТ	WO 94/12635	6/9/94	PC	CT			X	
	cu	WO 95/03318	2/2/95	PC	CT		<u> </u>	X	<u> </u>
	cv	WO 95/04158	2/9/95	PC	СТ			X	
	cw	WO 95/10538	4/20/95	PC				X	<b> </b>
	сх	WO 96/05226	2/22/96	PC			ļ	X	
	CY	WO 96/13587	5/9/96		CT			X	
	cz	WO 96/23225	8/1/96		CT .		ļ	X	
	DA	WO 96/30406	10/3/96	<u> </u>	CT			X	
	DB	WO 96/37621	11/28/96	<u> </u>	CT			X	<del>                                     </del>
	DC	WO 96/39434	12/12/96	P	CT			X	<del> </del>
	DD	WO 96/39438	12/12/96	P	CT			X	<del> </del>
	DE	WO 96/40040	12/19/96	P	CT			X	<u> </u>
	0	THER DOCUMEN	ITS (Inclu	ding Author, Ti	tle, Date, Per	tinent Pa	ages, Et	c.)	
				<del></del>					
DATE CONSIDERED									
EXAMINER									
*EXAMIN	IER:	Initial if reference con n if not in conformance	sidered, wh	ether or not citation	on is in conform	ance with	MPEP 60	09; Drav municati	v line on to
through o	atatio	n it not in contormand	e and not c	onsidered. Includ	ac copy or tills i	J			<u> </u>